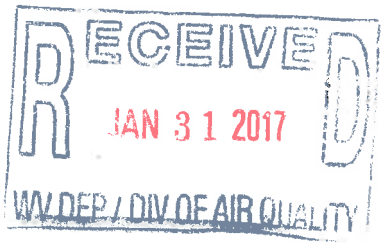
312 Justice Avenue
Logan, WV 25601

Phone (304) 752-8320
Fax (304) 752-7488

January 26, 2017



Mr. William F. Durham, Director
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

RE: Greenbrier Minerals, LLC
General Permit Modification
Facility ID 045-00131

Dear Mr. Durham:

On behalf of Cliffs Logan County Coal, LLC, I am submitting the enclosed General Permit Registration Modification Application for the above-referenced facility. The submittal fee of $1,500 and additional permit copies are included.

The application addresses the construction and operation of two deep mines belts and one stockpile to be associated by a short haulroad.

If additional information or clarification is needed, please contact me at the Logan address listed above or call 304-752-8320.

Sincerely,

Donna J. Toler
Air Quality Project Manager

donnatoler@suddenlink.net

TABLE OF CONTENTS

WVDAQ Registration Application

WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
601 57th St East
Charleston, WV 25304
Phone: (304) 926-0475 • www.wvdep.org

APPLICATION FOR GENERAL PERMIT REGISTRATION

CONSTRUCT, MODIFY, RELOCATE OR ADMINISTRATIVELY UPDATE A STATIONARY SOURCE OF AIR POLLUTANTS

PLEASE CHECK ALL THAT APPLY (IF KNOWN):
□ **CONSTRUCTION** ■ **MODIFICATION** □ **RELOCATION**
□ **ADMINISTRATIVE UPDATE** □ **AFTER-THE-FACT**

FOR AGENCY USE ONLY: *PLANT I.D. #* _____

PERMIT # _____ *PERMIT WRITER:* _____

CHECK WHICH TYPE OF GENERAL PERMIT REGISTRATION YOU ARE APPLYING FOR:

■ **G10-C** – Coal Preparation and Handling
□ **G20-B** – Hot Mix Asphalt
□ **G30-B** – Natural Gas Compressor Stations
□ **G40-B** – Nonmetallic Minerals Processing
□ **G50-B** – Concrete Batch

SECTION I. GENERAL INFORMATION

1. NAME OF APPLICANT (AS REGISTERED WITH THE WV SECRETARY OF STATE'S OFFICE):
GREENBRIER MINERALS, LLC

2. FEDERAL EMPLOYER ID NO. **(FEIN):**
26-1413283

3. **APPLICANT'S MAILING ADDRESS:**
4425 Anjean Road
Rupert, WV 25984

5. IF APPLICANT IS A SUBSIDIARY CORPORATION, PLEASE PROVIDE THE NAME OF PARENT CORPORATION:
SAME AS ABOVE

6. **WV BUSINESS REGISTRATION.** IS THE APPLICANT A RESIDENT OF THE STATE OF WEST VIRGINIA? ■ **YES** □ **NO**

➪ IF **YES,** PROVIDE A COPY OF THE **CERTIFICATE OF INCORPORATION / ORGANIZATION / LIMITED PARTNERSHIP** (ONE PAGE) INCLUDING ANY NAME CHANGE AMENDMENTS **OR** OTHER ***BUSINESS CERTIFICATE*** AS **ATTACHMENT A.**

➪ IF **NO,** PROVIDE A COPY OF THE **CERTIFICATE OF AUTHORITY / AUTHORITY OF L.L.C. / REGISTRATION** (ONE PAGE) INCLUDING ANY NAME CHANGE AMENDMENTS OR OTHER ***BUSINESS CERTIFICATE*** AS **ATTACHMENT A** .

SEE ATTACHMENT A

SECTION II. FACILITY INFORMATION

7. TYPE OF PLANT OR FACILITY (STATIONARY SOURCE) TO BE CONSTRUCTED, MODIFIED, RELOCATED OR ADMINISTRATIVELY UPDATED (E.G., COAL PREPARATION PLANT, PRIMARY CRUSHER, ETC.) :	8. STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE FOR THE FACILITY:
Construction and operation of two deep mine belts	**1221 and 1222**

9A. DAQ PLANT I.D. NO. (FOR AN EXISTING FACILITY:	10A. LIST ALL CURRENT 45CSR13 AND 45CSR30 (TITLE V) PERMIT NUMBERS ASSOCIATED WITH THIS PROCESS (FOR EXISTING FACILITY ONLY):
045-00131	**G10-D103F**

PRIMARY OPERATING SITE INFORMATION

11A. NAME OF PRIMARY OPERATING SITE:	12A. MAILING ADDRESS OF PRIMARY OPERATING SITE:
Saunders Prep Plant	**SAME AS PERMITTEE**

13A. DOES THE APPLICANT OWN, LEASE, HAVE AN OPTION TO BUY, OR OTHERWISE HAVE CONTROL OF THE *PROPOSED SITE*?
■ **YES** ☐ **NO**

➪ IF **YES**, PLEASE EXPLAIN: **OWNER/OPERATOR**

➪ IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14A. ➪ FOR **MODIFICATIONS or ADMINISTRATIVE UPDATES,** AT AN EXISTING FACILITY, PLEASE PROVIDE DIRECTIONS TO THE *PRESENT LOCATION* OF THE FACILITY FROM THE NEAREST STATE ROAD;

➪ ***FOR CONSTRUCTION OR RELOCATION PERMITS, PLEASE PROVIDE DIRECTIONS TO THE PROPOSED NEW SITE LOCATION FROM THE NEAREST STATE ROAD.***

➪ **From Charleston, follow US119S to Route 10 Intersection, proceed toward Man, turn left onto Buffalo Creek Road – proceed to Saunders past the Elk Lick coal loadout facility – plant will be located on right**

INCLUDE A **MAP** AS **ATTACHMENT F**.

15A. NEAREST CITY OR TOWN:	16A. COUNTY: **Logan**	
Saunders	**Lat: 81-40-01 Long: 37-47-57**	
17A. UTM NORTHING (KM):	18A. UTM EASTING (KM):	19A. UTM ZONE:
4183.53679	**441.28294**	**17**

1ST ALTERNATE OPERATING SITE INFORMATION

11B. NAME OF PRIMARY OPERATING SITE:	12B. MAILING ADDRESS OF PRIMARY OPERATING SITE:

13B. DOES THE APPLICANT OWN, LEASE, HAVE AN OPTION TO BUY, OR OTHERWISE HAVE CONTROL OF THE *PROPOSED SITE*?

☐ **YES** ☐ **NO**

➪ IF **YES**, PLEASE EXPLAIN: _____

➪ IF **NO**, **YOU** ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14B. ➪ FOR **MODIFICATIONS or ADMINISTRATIVE UPDATES,** AT AN EXISTING FACILITY, PLEASE PROVIDE DIRECTIONS TO THE *PRESENT LOCATION* OF THE FACILITY FROM THE NEAREST STATE ROAD;

➪ FOR **CONSTRUCTION OR RELOCATION PERMITS**, PLEASE PROVIDE DIRECTIONS TO *THE PROPOSED NEW SITE LOCATION* FROM THE NEAREST STATE ROAD.

_____

INCLUDE A **MAP** AS **ATTACHMENT F**.

15B. NEAREST CITY OR TOWN:	16B. COUNTY:	
17B. UTM NORTHING (KM):	18B. UTM EASTING (KM):	19B. UTM ZONE:

2ND ALTERNATE OPERATING SITE INFORMATION

11C. NAME OF PRIMARY OPERATING SITE:	12C. MAILING ADDRESS OF PRIMARY OPERATING SITE:

13C. DOES THE APPLICANT OWN, LEASE, HAVE AN OPTION TO BUY, OR OTHERWISE HAVE CONTROL OF THE *PROPOSED SITE*?

☐ **YES** ☐ **NO**

➪ IF **YES**, PLEASE EXPLAIN: _____

➪ IF **NO**, YOU ARE NOT ELIGIBLE FOR A PERMIT FOR THIS SOURCE.

14C. ⇨ FOR **MODIFICATIONS or ADMINISTRATIVE UPDATES,** AT AN EXISTING FACILITY, PLEASE PROVIDE DIRECTIONS TO THE *PRESENT LOCATION* OF THE FACILITY FROM THE NEAREST STATE ROAD;

⇨ FOR **CONSTRUCTION OR RELOCATION PERMITS**, PLEASE PROVIDE DIRECTIONS TO *THE PROPOSED NEW SITE LOCATION* FROM THE NEAREST STATE ROAD.

INCLUDE A **MAP** AS **ATTACHMENT F**.

15C. NEAREST CITY OR TOWN:	16C. COUNTY:	
17C. UTM NORTHING (KM):	18C. UTM EASTING (KM):	19C. UTM ZONE:

20. PROVIDE THE DATE OF ANTICIPATED INSTALLATION OR CHANGE: **March 15, 2017** ⇨ IF THIS IS AN **AFTER-THE-FACT** PERMIT APPLICATION, PROVIDE THE DATE UPON WHICH THE PROPOSED CHANGE DID HAPPEN: ____/____/____	21. DATE OF ANTICIPATED START- UP IF REGISTRATION IS GRANTED: **March 15, 2017**

22. PROVIDE MAXIMUM PROJECTED **OPERATING SCHEDULE** OF ACTIVITY/ ACTIVITIES OUTLINED IN THIS APPLICATION:

HOURS PER DAY **24** DAYS PER WEEK **7** WEEKS PER YEAR **52** PERCENTAGE OF OPERATION **100**

WEST VIRGINIA
STATE TAX DEPARTMENT
BUSINESS REGISTRATION CERTIFICATE

ISSUED TO:
GREENBRIER MINERALS, LLC
ANJEAN RD
RUPERT, WV 25984-0000

BUSINESS REGISTRATION ACCOUNT NUMBER: **1032-1821**

This certificate is issued on: 06/15/2011

This certificate is issued by
the West Virginia State Tax Commissioner
in accordance with Chapter 11, Article 12, of the West Virginia Code

The person or organization identified on this certificate is registered to conduct business in the State of West Virginia at the location above.

This certificate is not transferrable and must be displayed at the location for which issued.

This certificate shall be permanent until cessation of the business for which the certificate of registration was granted or until it is suspended, revoked or cancelled by the Tax Commissioner.

Change in name or change of location shall be considered a cessation of the business and a new certificate shall be required.

TRAVELING/STREET VENDORS: Must carry a copy of this certificate in every vehicle operated by them. CONTRACTORS, DRILLING OPERATORS, TIMBER/LOGGING OPERATIONS: Must have a copy of this certificate displayed at every job site within West Virginia.

atL006 v.4
L1541364864

ATTACHMENT B

DETAILED PROCESS DESCRIPTION

The Saunders Preparation Plant is located in a remote area of Buffalo Creek, Logan County, WV. The facility is clean and very well maintained.

This modification (2017) addresses the installation and operation of two deep mine raw coal belt conveyors and associated stockpile to be located above the loadout facility and connected to the facility by haulroad.

Raw coal is transferred from a local deep mine to the raw coal stockpile area via belt conveyors BC-01(PE), BC-02(PE), BC-03, and BC-04 @ TP-01(TC-FE) thru TP-07(TC-PE). Raw coal delivered by truck is dumped at the partially-enclosed w/water three-sided roofed bin BS-01(PW) @ TP-08(UD-PW); transfers to belt BC-05(PE) @ TP-09(TC-FE); transfers and processed by an MMD crusher CR-01(FW) @ TP-10(TC-FE); then to the raw coal stockpile area via belt conveyor BC-06(PE) @ TP-11(TC-FW) and TP-12(TC-PE). Raw coal stockpiles OS-01(SW-WS), OS-02(SW-WS) and OS-03(SW-WS) discharge underpile @ TP-13(LO-UC), TP-14(LO-UC), TP-15(LO-UC) to a raw coal reclaim belt BC-07(FE) for transfer to screen SS-01(FW) @ TP-16(TC-FE); to a double roll crusher CR-02(FW) @ TP-17(TC-FW), to belt BC-08(PE) @ TP-18(TC-FW), into the plant @ TP-19(TC-FW) and to the raw coal screens-02(FW); and to the wet wash system @ TP-69(TC-FW). In addition, throughput for crusher CR-02 has been adjusted to show a portion of the trucked coal being processed twice, even though the total throughput for the source is 7,884,000 tons. According to the plant manager, only 10% of the truck delivered coal is crushed twice because it produces too many fines which are expelled as waste product.

ATTACHMENT B

Clean coal transfers to the clean coal stockpile area via a series of partially-enclosed belt conveyors BC-09(PE) thru BC-17(PE) @ TP-20(TC-FW) thru TP-32(TC-PE). Direct ship clean coal is delivered by truck and dumped at a three-sided roofed w/water bin BS-02(PW) @ TP-33(UD-PW). This material is transferred to a crusher feed conveyor BC-18(PE) @ TP-34(TC-FE) and transfers @ TP-35(TC-FE) to a double roll crusher CR-03(FW). Clean coal is then sent to the clean coal stockpile OS-07(SW-WS) via belt conveyor BC-19(PE) @ TP-36(TC-FW) and TP-37(TC-MDH) and on to belt conveyor BC-21(PE) @ TP-38(LO-UC). Clean coal stockpiles OS-04(SW-WS), OS-05(SW-WS), OS-06(SW-WS) discharge underpile to reclaim conveyor BC-20(FE) @ TP-39(LO-UC), TP-40(LO-UC), and TP-41(LO-UC). This reclaimed material is transferred from BC-20 and BC-21 @ TP-42(TC-FE) and TP-43(TC-FE) to the loadout via belt conveyor BC-22(PE); to the loadout bin BS-03(FE) @ TP-44(TC-FE); into the surge bin BS-04(FE) @ TP-45(TC-FE); and to railcar for delivery @ TP-46(LR-TC).

Oversized clean coal from the wet wash system goes to a 373TPH maximum rated double roll crusher @ TP-56(TC-FW) located inside the plant and transfers inside the plant to belt conveyor BC-09 @ TP57(TC-FW).

The refuse system was extended by adding a series of five partially enclosed belts BC-27 thru BC-31 @ TP-61(TC-FE) thru TP-65(TC-FE). Material from belt BC-31 will transfer to a partially-enclosed (open top) refuse bin BS-07(PE) @ TP-66(TC-PE) and then to truck for delivery to the disposal area @ TP-67(LO-MDH) for approximately 500 feet. The refuse belt system was completed in the Spring of 2013 and no refuse material is trucked from the preparation plant facility.

WORST CASE SCENARIO ONLY - Refuse transfers from the plant to belt BC-23(PE) @ TP-47(TC-FW) and into the filter cake bin BS-05(FE) @ TP-48(TC-FE), where the material is pressed and transferred to truck @ TP-

49(LO-MDH) for delivery to the disposal area @ TP-50(UL-MDH). Coarse refuse transfers from the plant to a collecting belt BC-24(PE) @ TP-51(TC-FW) for delivery to the refuse bin BS-06(FE) via belt BC-25(PE) @ TP-52(TC-FE) and TP-53(TC-FE). The refuse material is transferred from the bin to truck @ TP-54(LO-MDH) for delivery to the disposal area @ TP-55(UL-MDH).

Stoker coal would transfer inside the plant to belt conveyor BC-26(PE) @ TP-58(TC-FW); to stockpile OS-08(SW-WS) @ TP-59(TC-WS) and to truck @ TP-60(LO-MDH).

The modification of April 2014 addressed the addition of an excess raw coal stockpile and an excess clean coal stockpile – raw coal will be delivered by truck to the excess stockpile OS-09(SW-WS) @ TP-69(UL-MDH) and transferred out to existing raw coal truck dump bin BS-01 @ TP-70(LO-MDH) and TP-71(UD-PW); clean direct ship coal will be delivered to the excess clean coal stockpile OS-10(SW-WS) @ TP-72(UL-MDH) and transferred out to existing direct ship bin BS-02 @ TP-73(LO-MDH) and TP-74(UD-PW). No other changes are proposed and no changes to the thruput for bins BS-01 or BS-02 is proposed.

Haulroads emissions have been adjusted to show that raw coal and clean coal are received on paved haulroads 0.29 miles in length and the unpaved refuse haulroad has been extended to 3.4 miles in length in the event the plant refuse belt system becomes disabled – worst case scenario. The paved haulroad "road surface silt loading" was adjusted to depict emissions more in line with paved surfaces. The factors used in this calculation section are modeled after facilities located in the western United States and are not indicative of the local haulroad criteria.

ATTACHMENT B

Modification January 2017:

Raw Coal will be carried from the deep mine to stockpile OS-11(SW-WS) via belt conveyors BC-32(PE) and BC-33(PE) at TP-75(TC-FE) through TP-78(LO-MDH). This raw coal material will be part of coal received through the raw coal truck dump BS-01 located at plant.

ATTACHMENT C

DESCRIPTION OF FUGITIVE EMISSIONS

Potential sources of fugitive particulate emissions for this facility include emissions, which are not captured by pollution control equipment and emissions from open stockpiles and vehicular traffic on unpaved haulroads and unpaved work areas. The haulroads and work areas will be controlled by water truck in accordance with section E.6.c.i. of the General Permit.

The water truck is equipped with pumps sufficient to maintain haulroads and work areas. The water truck will be operated three times daily, and more as needed in dry periods.

An additive to prevent freezing will be utilized in the winter months when freezing conditions are present.

FACILITY ID: 045-00131

GREENBRIER MINERALS

P.O. BOX 446, MAN, WV 25635
119 RICH CREEK ROAD, LYBURN, WV 25632

SAUNDERS COAL PREPARATION FACILITY

MATERIAL FLOW DIAGRAM

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY

Submittal: January,2017

File Name:	Quadrangle:
Plot Plan for AQ Permit_Updated 01-18-17	

File Name:				Quadrangle:
Plot Plan for AQ Permit_Updated 01-18-17				Lorado
File Path:				District:
H:\Eng\Buffalo Property\Saunders Preparation Facility\Air Quality				Triadelphia
Drawn By:	Date:	Scale:	Contour Interval:	County:
KJJ	01/18/2017	1" = 100'	2'	Logan

FACILITY ID: 045-00131

GREENBRIER MINERALS

P.O. BOX 446, MAN, WV 25635
119 RICH CREEK ROAD, LYBURN, WV 25632

SAUNDERS COAL PREPARATION FACILITY
SITE PLAN
WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTIO
DIVISION OF AIR QUALITY
SHEET 1 OF 3

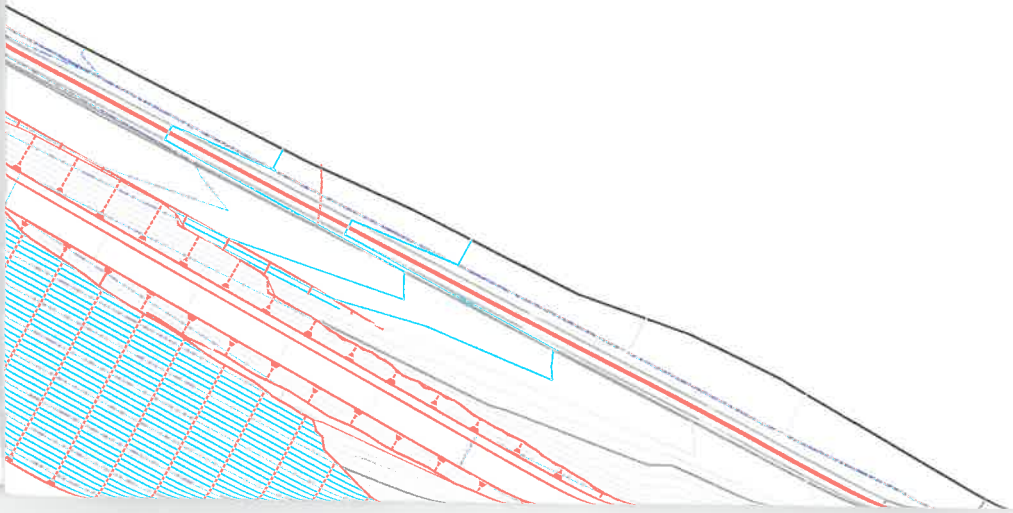
File Name:				Quadrangle:
Plot Plan for AQ Permit_Updated 01-18-17				Lorado
File Path:				District:
H:\Eng\Buffalo Property\Saunders Preparation Facitity\Air Quality				Triadelphia
Drawn By:	Date:	Scale:	Contour Interval:	County:
KJJ	01/18/2017	1" = 100'	2'	Logan

FACILITY ID: 045-00131

GREENBRIER MINERALS

P.O. BOX 446, MAN, WV 25635
119 RICH CREEK ROAD, LYBURN, WV 25632

SAUNDERS COAL PREPARATION FACILITY
SITE PLAN
WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
SHEET 2 OF 3



to Sheet 1

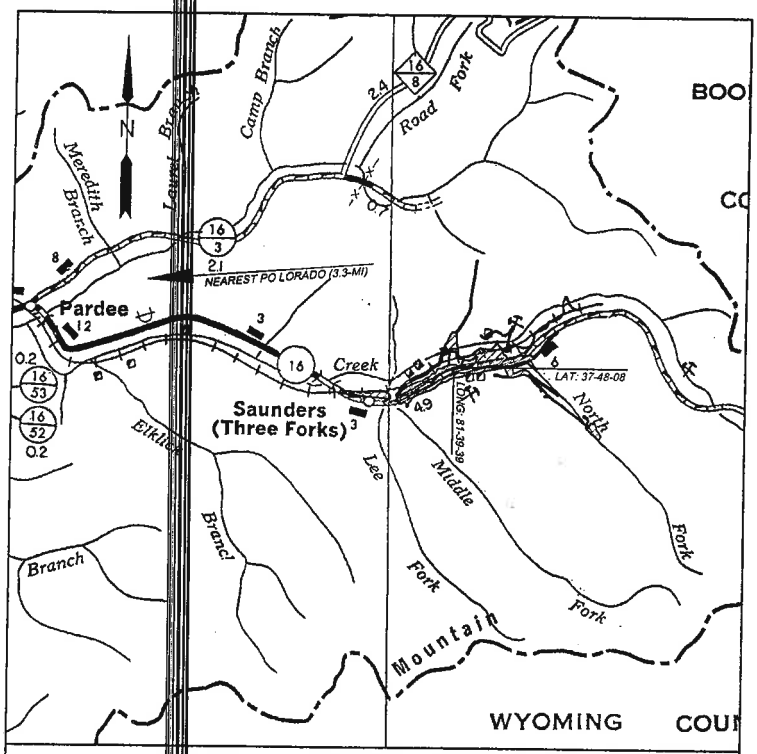
File Name:				Quadrangle:
Plot Plan for AQ Permit_Updated 01-18-17				Lorado
File Path:				District:
H:\Eng\Buffalo Property\Saunders Preparation Facitity\Air Quality				Triadelphia
Drawn By:	Date:	Scale:	Contour Interval:	County:
KJJ	01/18/2017	1" = 100'	2'	Logan

FACILITY ID: 045-00131

GREENBRIER MINERALS

P.O. BOX 446, MAN, WV 25635
119 RICH CREEK ROAD, LYBURN, WV 25632

SAUNDERS COAL PREPARATION FACILITY
SITE PLAN
WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF AIR QUALITY
SHEET 3 OF 3



LOCATION MAP

PERMIT NO. O-0098-83 / NPDES NO. WV0095699

PREPARED FROM WV GENERAL HIGHWAY MAP

TRIADELPHIA DISTRICT, LOGAN COUNTY

NEAREST POST OFFICE: LORADO

USGS QUADRANGLES (WV): LORADO

SCALE: 1" = 1 MILE

RECEIVING STREAMS: MIDDLE FORK OF LEE FORK & NORTH FORK, ALL OF BUFFALO CREEK OF GUYANDOTTE RIVER OF OHIO RIVER

CRUSHING AFFECTED SOURCE SHEET

Source Identification Number[1]		CR-01	CR-02	CR-03	Plant Oversize CR-04
Type of Crusher or Screen[2]		MMD	DR	DR	DR
Date of Manufacture[3]		2008	2008	2008	2008
Maximum Throughput[4]	tons/hour	800	900	800	373
	tons/year	7,008,000	7,884,000	7,008,000	3,267,000
Material sized from/to:[5]		6x0 to 2x0	4x0 to 2x0	6x0 to 2x0	2x0
Average Moisture Content (%)[6]		6	6	5	6.4
Control Device ID Number[7]		FW	FW	FW	FW
Baghouse Stack Parameters[8]	height (ft)	N/A			
	diameter (ft)				
	volume (ACFM)				
	exit temp (°F)				
	UTM Coordinates				
Maximum Operating Schedule[9]	hours/day	24	24	24	24
	days/year	365	365	365	365
	hours/year	8760	8760	8760	8760
Percentage of Operation[10]	January-March	25	25	25	25
	April-June	25	25	25	25
	July-September	25	25	25	25
	Oct-December	25	25	25	25

1. Enter the appropriate Source Identification Number for each crusher and screen. For example, in the case of an operation which incorporates multiple crushers, the crushers should be designated CR-1, CR-2, CR-3 etc. beginning with the breaker or primary crusher. Multiple screens should be designated S-1, S-2, S-3 etc.

2. Describe types of crushers and screens using the following codes:

HM	Hammermill
DR	Double Roll Crusher
BM	Ball Mill
RB	Rotary Breaker
JC	Jaw Crusher
GC	Gyratory Crusher
OT	Other

SS	Stationary Screen
SD	Single Deck Screen
DD	Double-Deck Screen
TD	Triple Deck Screen
OT	Other

3. Enter the date that each crusher and screen was manufactured.

4. Enter the maximum throughput for each crusher and screen in tons per hour and tons per year.

5. Describe the nominal material size reduction (e.g. +2"/ -_").

6. Enter the average percent moisture content of the material processed.

7. Enter the appropriate Control Device Identification Number for each crusher and screen. Refer to Table A - *Control Device Listing* and *Control Device Identification Number Instructions* in the *Reference Document* for Control Device ID prefixes and numbering.

8. Enter the appropriate stack parameters if a baghouse control device is used.

9. Enter the maximum operating schedule for each crusher

SCREENING AFFECTED SOURCE SHEET

Source Identification Number[1]		SS-01	In-plant SS-02		
Type of Crusher or Screen[2]		SD	DD		
Date of Manufacture[3]		2008	2013		
Maximum Throughput[4]	tons/hour	900	900		
	tons/year	7,884,000	7,884,000		
Material sized from/to:[5]		6x0	4x0		
Average Moisture Content (%)[6]		6	15+		
Control Device ID Number[7]		FW	FW		
Baghouse Stack Parameters[8]	height (ft)	N/A			
	diameter (ft)				
	volume (ACFM)				
	exit temp (°F)				
	UTM Coordinates				
Maximum Operating Schedule[9]	hours/day	24	24		
	days/year	365	365		
	hours/year	8760	8760		
Percentage of Operation[10]	January-March	25	25		
	April-June	25	25		
	July-September	25	25		
	Oct-December	25	25		

1. Enter the appropriate Source Identification Number for each crusher and screen. For example, in the case of an operation which incorporates multiple crushers, the crushers should be designated CR-1, CR-2, CR-3 etc. beginning with the breaker or primary crusher. Multiple screens should be designated S-1, S-2, S-3 etc.

2. Describe types of crushers and screens using the following codes:

HM	Hammermill
DR	Double Roll Crusher
BM	Ball Mill
RB	Rotary Breaker
JC	Jaw Crusher
GC	Gyratory Crusher
OT	Other

SS	Stationary Screen
SD	Single Deck Screen
DD	Double-Deck Screen
TD	Triple Deck Screen
OT	Other

3. Enter the date that each crusher and screen was manufactured.

4. Enter the maximum throughput for each crusher and screen in tons per hour and tons per year.

5. Describe the nominal material size reduction (e.g. +2"/ -_").

6. Enter the average percent moisture content of the material processed.

7. Enter the appropriate Control Device Identification Number for each crusher and screen. Refer to Table A - *Control Device Listing* and *Control Device Identification Number Instructions* in the *Reference Document* for Control Device ID prefixes and numbering.

8. Enter the appropriate stack parameters if a baghouse control device is used.

9. Enter the maximum operating schedule for each crusher

CONVEYING AFFECTED SOURCE SHEET

Source Identification Number[1]	Date of Manufacture[2]	Type of Material Handled[3]	Size of Material Handled[4]	Maximum Material Transfer Rate[5]		Average Moisture Content (%)[6]	Control Device[7]
				tons/hour	tons/year		
BC-01	2008	RC	4x0	1500	13,140,000	6	PE
BC-02	2008	RC	4x0	1500	13,140,000	6	PE
BC-03	2008	RC	4x0	1500	13,140,000	6	PE
BC-04	2008	RC	4x0	1500	13,140,000	6	PE
BC-05	2008	RC	6x0	800	7,008,000	6	PE
BC-06	2008	RC	4x0	800	7,008,000	6	PE
BC-07	*2008*	*RC*	*4x0*	*900*	*7,884,000*	*6*	*FE*
BC-08	*2008*	*RC*	*4x0*	*900*	*7,884,000*	*6*	*PE*
BC-09	2008	CC	2x0	750	6,570,000	7	PE
BC-10	2008	CC	2x0	750	6,570,000	7	PE
BC-11	2008	CC	2x0	750	6,570,000	7	PE
BC-12	2008	CC	2x0	750	6,570,000	7	PE
BC-13	2008	CC	2x0	750	6,570,000	7	PE
BC-14	2008	CC	2x0	750	6,570,000	7	PE
BC-15	2008	CC	2x0	750	6,570,000	7	PE
BC-16	2008	CC	2x0	750	6,570,000	7	PE
BC-17	2008	CC	2x0	750	6,570,000	7	PE
BC-18	2008	CC	6x0	800	7,008,000	5	PE
BC-19	2008	CC	4x0	800	7,008,000	5	PE

CONVEYING AFFECTED SOURCE SHEET

Source Identification Number[1]	Date of Manufacture[2]	Type of Material Handled[3]	Size of Material Handled[4]	Maximum Material Transfer Rate[5]		Average Moisture Content (%)[6]	Control Device[7]
				tons/hour	tons/year		
BC-20	2008	CC	2x0	3500	6,570,000	6	FE
BC-21	2008	CC	4x0	3500	7,008,000	5	PE
BC-22	2008	CC	2x0	3500	13,578,000	5.5	PE
BC-23	2008	Refuse	<1 3/8	200	1,752,000	15	PE
BC-24	2008	Refuse	<1 3/8	600	5,256,000	10	PE
BC-25	2008	Refuse	<1 3/8	600	5,256,000	10	PE
BC-26	*2008*	*Stoker*	*+2x0*	*230*	*2,014,000*	*7*	*PE*
BC-27	2012	Refuse	<1 3/8	1050	5,256,000	10	PE
BC-28	2012	Refuse	<1 3/8	1050	5,256,000	10	PE
BC-29	2012	Refuse	<1 3/8	1050	5,256,000	10	PE
BC-30	2012	Refuse	<1 3/8	1050	5,256,000	10	PE
BC-31	2012	Refuse	<1 3/8	1050	5,256,000	10	PE
Proposed BC-32	2017	RC	2x0	1200	4,380,000	6	PE
Proposed BC-33	2017	RC	2x0	1200	4,380,000	6	PE

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	BS-01	Direct Ship BS-02	BS-03	BS-04	BS-05	BS-06
Type of Material Stored[2]	RC	CC	CC	CC	Filter Cake Refuse	Refuse
Average Moisture Content (%)[3]	6	5	6	6	15	10
Maximum Yearly Storage Throughput (tons)[4]	7,008,000	7,008,000	13,578,000	13,578,000	1,752,000	5,256,000
Maximum Storage Capacity (tons)[5]	100	100	400	220	80	200
Maximum Base Area (ft^2)[6]						
Maximum Pile Height (ft)[7]						
Method of Material Load-in[8]	TD	TD	TC	TC	TC	TC
Load-in Control Device Identification Number[9]	UD-PW	UD-PW	TC-FE	TC-FE	TC-FE	TC-FE
Storage Control Device Identification Number[9]	PW	PW	FE	FE	FE	FE
Method of Material Load-out[8]	TC	TC	TC	TC	FC	FC
Load-out Control Device Identification Number[9]	TC-FE	TC-FE	TC-FE	LR-TC	LO-MDH	LO-MDH

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - BS Bin or Storage Silo (full enclosure)
   - OS Open Stockpile
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other :
2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - FE Front Endloader
   - MC Mobile Conveyor/Stacker
   - UC Under-pile or Under-Bin Reclaim Conveyor
   - RC Rake or Bucket Reclaim Conveyor
   - SS Stationary Conveyor/Stacker
   - ST Stacking Tube
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker
   - OT Other: Fabric Vent Filter

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	**BS-07**					
Type of Material Stored[2]	**Refuse**					
Average Moisture Content (%)[3]	**10**					
Maximum Yearly Storage Throughput (tons)[4]	**5,256,000**					
Maximum Storage Capacity (tons)[5]	**200**					
Maximum Base Area (ft^2)[6]						
Maximum Pile Height (ft)[7]						
Method of Material Load-in[8]	**SS**					
Load-in Control Device Identification Number[9]	**TC-PE**					
Storage Control Device Identification Number[9]	**PE**					
Method of Material Load-out[8]	**FC**					
Load-out Control Device Identification Number[9]	**LO-MDH**					

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - BS Bin or Storage Silo (full enclosure)
   - OS Open Stockpile
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other :
2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - FE Front Endloader
   - MC Mobile Conveyor/Stacker
   - UC Under-pile or Under-Bin Reclaim Conveyor
   - RC Rake or Bucket Reclaim Conveyor
   - SS Stationary Conveyor/Stacker
   - ST Stacking Tube
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker
   - OT Other: Fabric Vent Filter

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	OS-01	OS-02	OS-03	OS-04	OS-05	OS-06
Type of Material Stored[2]	RC	RC	RC	CC	CC	CC
Average Moisture Content (%)[3]	6	6	6	6	6	6
Maximum Yearly Storage Throughput (tons)[4]	13,140,000	13,140,000	13,140,000	6,570,000	6,570,000	6,570,000
Maximum Storage Capacity (tons)[5]	25,000	25,000	25,000	25,000	25,000	25,000
Maximum Base Area (ft^2)[6]	38,869	38,869	38,869	38,869	38,869	38,869
Maximum Pile Height (ft)[7]	75'	75'	75'	75'	75'	75'
Method of Material Load-in[8]	Stacking Tube SS/ST	Stacking Tube SS/ST	Stacking Tube SS/ST	Stacking Tube SS/ST	Stacking Tube SS/ST	Stacking Tube SS/ST
Load-in Control Device Identification Number[9]	TC-PE	TC-PE	TC-PE	TC-PE	TC-PE	TC-PE
Storage Control Device Identification Number[9]	SW-WS	SW-WS	SW-WS	SW-WS	SW-WS	SW-WS
Method of Material Load-out[8]	Underpile UC	Underpile UC	Underpile UC	UnderpileUC	Underpile UC	Underpile UC
Load-out Control Device Identification Number[9]	LO-UC	LO-UC	LO-UC	LO-UC	LO-UC	LO-UC

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - **BS Bin or Storage Silo (full enclosure)**
   - **OS Open Stockpile**
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other
2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - **FE Front Endloader**
   - MC Mobile Conveyor/Stacker
   - **UC Under-pile or Under-Bin Reclaim Conveyor**
   - RC Rake or Bucket Reclaim Conveyor
   - **SS Stationary Conveyor/Stacker**
   - **ST Stacking Tube**
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker
9. ***OT Other – MDH Minimum Drop Height***

STORAGE ACTIVITY AFFECTED SOURCE SHEET

Source Identification Number[1]	OS-07	OS-08	Proposed OS-09	Proposed OS-10	
Type of Material Stored[2]	CC	CC Stoker	RC	CC	
Average Moisture Content (%)[3]	5	7	5	5	
Maximum Yearly Storage Throughput (tons)[4]	7,008,000	2,014,000	500,000	500,000	
Maximum Storage Capacity (tons)[5]	25,000	1,000	20,000	20,000	
Maximum Base Area (ft^2)[6]	38,869	3,869	38,869	38,869	
Maximum Pile Height (ft)[7]	75'	20'	40'	40'	
Method of Material Load-in[8]	Stacking Tube SS/ST	SS	Truck	Truck	
Load-in Control Device Identification Number[9]	TC-PE	TC-WS	UL-MDH	UL-MDH	
Storage Control Device Identification Number[9]	SW-WS	SW-WS	SW-WS	SW-WS	
Method of Material Load-out[8]	Underpile UC	Loader	Loader	Loader	
Load-out Control Device Identification Number[9]	LO-UC	LO-MDH	LO-MDH	LO-MDH	

1. Enter the appropriate Source Identification Number for each storage activity using the following codes. For example, if the facility utilizes three storage bins, four open stockpiles and one storage building (full enclosure), the Source Identification Numbers should be BS-1, BS-2, and BS-3; OS-1, OS-2, OS-3, and OS-4; and SB-1, respectively.
   - **BS Bin or Storage Silo (full enclosure)**
   - **OS Open Stockpile**
   - SF Stockpiles with wind fences
   - E3 Enclosure (three sided enclosure)
   - SB Storage Building (full enclosure)
   - OT Other
2. Describe the type of material stored or stockpiled (e.g. clean coal, raw coal, refuse, etc).
3. Enter the average percent moisture content of the stored material.
4. Enter the maximum yearly storage throughput for each storage activity.
5. Enter the maximum storage capacity for each storage activity in tons (e.g. silo capacity, maximum stockpile size, etc.)
6. For stockpiles, enter the maximum stockpile base area.
7. For stockpiles, enter the maximum stockpile height.
8. Enter the method of load-in or load-out to/from stockpiles or bins using the following codes:
   - CS Clamshell
   - FC Fixed Height Chute from Bins
   - **FE Front Endloader**
   - MC Mobile Conveyor/Stacker
   - **UC Under-pile or Under-Bin Reclaim Conveyor**
   - RC Rake or Bucket Reclaim Conveyor
   - **SS Stationary Conveyor/Stacker**
   - **ST Stacking Tube**
   - TC Telescoping Chute from Bins
   - TD Truck Dump
   - PC Pneumatic Conveyor/Stacker
9. ***OT Other – MDH Minimum Drop Height***

ATTACHMENT H

BAGHOUSE AIR POLLUTION CONTROL DEVICE SHEET
Not applicable for this facility

Complete a Baghouse Air Pollution Control Device Sheet for each baghouse control device.

1. Baghouse Control Device Identification Number:
2. Manufacturer's name and model identification:
3. Number of compartments in baghouse:
4. Number of compartments online during normal operation and conditions:
5. Gas flow rate into baghouse: _____ ACFM @ _____ °F and _____ PSIA
6. Total cloth area: _____ ft^2
7. Operating air to cloth ratio: _____ ft/min
8. Filter media type: _____
9. Stabilized static pressure drop across baghouse: _____ inches H_2O
10. Baghouse operation is:

    ☐ Continuous ☐ Automatic ☐ Intermittent
11. Method used to clean bags:

    ☐ Shaker ☐ Pulse jet ☐ Reverse jet ☐ Other
12. Emission rate of particulate matter entering and exiting baghouse at maximum design operating conditions:

    Entering baghouse:_____ lb/hr and _____ grains/ACF

    Exiting baghouse: _____ lb/hr and _____ grains/ACF
13. Guaranteed minimum baghouse collection efficiency: _____ %
14. Provide a written description of the capture system (e.g. hooding and ductwork arrangement), size of ductwork and hoods and air volume, capacity and operating horsepower of fan:
15. Describe the method of disposal for the collected material:

INPUTS

Include all information for each emission source and transfer point as listed in the permit application.

Name of applicant: *Greenbrier Minerals*
Name of plant: **Saunders Prep Plant**
January 2017 Mod

1. CRUSHING AND SCREENING (including all primary and secondary crushers and screens)

1a. PRIMARY CRUSHING

Primary Crusher ID Number	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %
CR-01	MMD	800	7,008,000	FW	90
CR-02	Double Roll	900	7,884,000	FW	90
CR-03	Double Roll	800	7,008,000	FW	90
CR-04	Double Roll	373	3,267,480	FW	90

1b. SECONDARY AND TERTIARY CRUSHING

Secondary & Tertiary Crusher ID	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %
CR-02	DOUBLE ROLL	900	700,800	FW	90
	10% of trucked coal processed as secondary				

1c. SCREENING

Primary Screen	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %
SS-01	Grizzly	900	7,884,000	FW	90
SS-02	In-Plant Screen	900	7,884,000	FW	90
	SS-02 should get WW control as 3695				
	gallons per minute of water goes thru it				

2. TRANSFER POINTS (including all conveyor transfer points, equipment transfer points etc.)

		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)	7	

Transfer Point ID No.	Transfer Point Description Include ID Numbers of all conveyors, crushers, screens, stockpiles, etc. involved	Material Moisture Content %	Maximum Transfer Rate TPH	Maximum Transfer Rate TPY	Control Device ID Number	Control Efficiency %	
TP01	ROM to BC-01	6	1,500	13,140,000	TC-FE	80	
TP02	BC-01 to BC-02	6	1,500	13,140,000	TC-FE	80	
TP03	BC-02 to OS-01	6	1,500	13,140,000	TC-PE	50	
TP04	BC-02 to BC-03	6	1,500	13,140,000	TC-FE	80	
TP05	BC-03 to OS-02	6	1,500	13,140,000	TC-PE	50	
TP06	BC-03 to BC-04	6	1,500	13,140,000	TC-FE	80	
TP07	BC-04 to OS-03	6	1,500	13,140,000	TC-PE	50	
TP08	Truck to BS-01	6	800	7,008,000	UD-PW	85	
TP09	BS-01 to BC-05	6	800	7,008,000	TC-FE	80	
TP10	BC-05 to CR-01	6	800	7,008,000	TC-FE	80	
TP11	CR-01 to BC-06	6	800	7,008,000	TC-FW	90	
TP12	BC-06 to OS-03	6	800	7,008,000	TC-PE	50	
TP13	OS-01 to BC-07	6	900	7,884,000	LO-UC	80	
TP14	OS-02 to BC-07	6	900	7,884,000	LO-UC	80	
TP15	OS-03 to BC-07	6	900	7,884,000	LO-UC	80	
TP16	BC-07 to SS-01	6	900	7,884,000	TC-FE	80	
TP17	SS-01 to CR-02	6	900	7,884,000	TC-FW	90	
TP18	CR-02 to BC-08	6	900	7,884,000	TC-FW	90	
TP19	BC-08 to SS-02	6	900	7,884,000	TC-FW	90	
TP-69	SS-02 To Wet Wash	15	900	7,884,000	TC-FW	90	3985GPM
TP20	Plant to BC-09	6.4	750	6,570,000	TC-FW	90	
TP21	BC-09 to BC-10	6.4	750	6,570,000	TC-FE	80	
TP22	BC-10 to BC-11	6.4	750	6,570,000	TC-FE	80	
TP23	BC-11 to BC-12	6.4	750	6,570,000	TC-FE	80	
TP24	BC-12 to BC-13	6.4	750	6,570,000	TC-FE	80	
TP25	BC-13 to BC-14	6.4	750	6,570,000	TC-FE	80	
TP26	BC-14 to OS-04	6.4	750	6,570,000	TC-PE	50	
TP27	BC-14 to BC-15	6.4	750	6,570,000	TC-FE	80	
TP28	BC-15 to OS-05	6.4	750	6,570,000	TC-PE	50	
TP29	BC-15 to BC-16	6.4	750	6,570,000	TC-FE	80	
TP30	BC-16 to OS-06	6.4	750	6,570,000	TC-PE	50	
TP31	BC-16 to BC-17	6.4	750	6,570,000	TC-FE	80	
TP32	BC-17 to OS-07	6.4	750	6,570,000	TC-PE	50	
TP33	Truck to BS-02	5	800	7,008,000	UD-PW	85	
TP34	BS-02 to BC-18	5	800	7,008,000	TC-FE	80	
TP35	BC-18 to CR-03	5	800	7,008,000	TC-FE	80	
TP36	CR-03 to BC-19	5	800	7,008,000	TC-FW	90	
TP37	BC-19 to OS-07	5	800	7,008,000	TC-MDH	0	
TP38	OS-07 to BC-21	5	3,500	7,008,000	LO-UC	80	
TP39	OS-04 to BC-20	6	3,500	6,570,000	LO-UC	80	
TP40	OS-05 to BC-20	6	3,500	6,570,000	LO-UC	80	
TP41	OS-06 to BC-20	6	3,500	6,570,000	LO-UC	80	
TP42	BC-20 to BC-22	6	3,500	6,570,000	TC-FE	80	
TP43	BC-21 to BC-22	5	3,500	7,008,000	TC-FE	80	
TP44	BC-22 to BS-03	5.5	3,500	13,578,000	TC-FE	80	
TP45	BS-03 to BS-04	5.5	3,500	13,578,000	TC-FE	80	
TP46	BS-04 to Railcar	5.5	3,500	13,578,000	LR-TC	75	
TP47	Plant to BC-23	15	200	1,752,000	TC-FW	90	
TP48	BC-23 to BS-05	15	200	1,752,000	TC-FE	80	
TP49	BS-05 to Truck	15	200	1,752,000	LO-MDH	0	
TP50	Truck to Disposal Area	10	600	5,256,000	UL-MDH	0	
TP51	Plant to BC-24	10	600	5,256,000	TC-FW	90	
TP52	BC-24 to BC-25	10	600	5,256,000	TC-FE	80	
TP53	BC-25 to BS-06	10	600	5,256,000	TC-FE	80	
TP54	BS-06 to Truck	10	600	5,256,000	LO-MDH	0	
TP55	Truck to Disposal Area	10	600	5,256,000	UL-MDH	0	
TP56	Plant to Crusher CR-04	7	373	3,267,480	TC-FW	90	
TP57	CR-04 to BC09	7	373	3,267,480	TC-FW	90	
TP58	Plant to BC-26	7	230	2,014,000	TC-FW	90	

TP59	BC-26 to OS-08	7	230	2,014,000	TC-WS	70	
TP60	OS-08 to Truck	7	230	2,014,000	LO-MDH	0	
TP61	BS-06 to BC-27	10	600	5,256,000	TC-FE	80	
TP62	BC-27 to BC-28	10	1,050	5,256,000	TC-FE	80	
TP63	BC-28 to BC-29	10	1,050	5,256,000	TC-FE	80	
TP64	BC-29 to BC-30	10	1,050	5,256,000	TC-FE	80	
TP65	BC-30 to BC-31	10	1,050	5,256,000	TC-FE	80	
TP66	BC-31 to BS-07	10	1,050	5,256,000	TC-FE	80	
TP67	BS-07 to Truck	10	1,050	5,256,000	LO-MDH	0	
TP68	Truck to Disposal Area	10	1,050	5,256,000	LO-MDH	0	
TP69	Truck to OS-09	5	114	500,000	UL-MDH	0	
TP70	OS-09 to Truck	5	114	500,000	LO-MDH	0	
TP71	Truck to RC Dump Bin	5	114	500,000	UD-PW	80	
TP72	Truck to OS-10	5	114	500,000	UL-MDH	0	
TP73	OS-10 to Truck	5	114	500,000	LO-MDH	0	
TP74	Truck to DS Dump Bin	5	114	500,000	UD-PW	80	
TP75	Deep mine to BC-32	6	1,200	4,380,000	TC-FE	80	ADD
TP76	BC-32 to BC-33	6	1,200	4,380,000	TC-FE	80	ADD
TP77	BC-33 to OS-11	6	1,200	4,380,000	TC-MDH	0	ADD
TP78	OS-11 to Truck	6	1,200	4,380,000	LO-MDH	0	ADD

3. WIND EROSION OF STOCKPILES *(including all stockpiles of raw coal, clean coal, coal refuse, etc.)*

p =	number of days per year with precipitation >0.01 inch	157
f =	percentage of time that the unobstructed wind speed	20
	exceeds 12 mph at the mean pile height	

Source ID No.	Stockpile Description	Silt Content of Material %	Stockpile base area Max. sqft	Control Device ID Number	Control Efficiency %
OS01	Raw Coal	5	38,869	SW-WS	75
OS02	Raw Coal	5	38,869	SW-WS	75
OS03	Raw Coal	5	38,869	SW-WS	75
OS04	Clean Coal	3	38,869	SW-WS	75
OS05	Clean Coal	3	38,869	SW-WS	75
OS06	Clean Coal	3	38,869	SW-WS	75
OS07	Clean Coal	3	38,869	SW-WS	75
OS-08	Stoker Coal	3	3,869	SW-WS	75
OS-09	Excess raw coal	5	38,869	SW-WS	75
OS-10	Excess clean coal	3	38,869	SW-WS	75
OS-11	Raw Coal	3	38,869	SW-WS	75

4. UNPAVED HAULROADS *(including all equipment traffic involved in process, haul trucks, endloaders, etc.)*

s =	silt content of road surface material (%)	9
p =	number of days per year with precipitation >0.01 inch	157
M_{dry} =	surface material moisture content (%) - dry conditions	0.2

Item Number	Description	Number of wheels	Mean Vehicle Weight(tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	to OS-09	18	45	10	0.1	1.26	11,111	HR-WS	70
2	to OS-10	18	45	10	0.1	1.26	11,111	HR-WS	70
3	Refuse Out 7,008,000	14	40	10	3.4	20	175,200	HR-WS	70
4	Plans are to use plant refuse bins								
5	for emergency use only - total								
6	distance may be only 600 ft so								
7	miles traveled are worst case								
8	Deep Mine Raw Coal 4,380,000	18	40	10	1.5	12.5	109,500	HR-WS	70

5. INDUSTRIAL PAVED HAULROADS *(including all equipment traffic involved in process, haul trucks, endloaders, etc.)*

sL =	road surface silt loading, (g/ft^2)	1
P =	number of days per year with precipitation >0.01 inch	157

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	Raw Coal In 7,008,000	18	0.29	17.77	155,733	HR-WS	70
2	Clean Coal In 7,008,000	18	0.29	17.77	155,733	HR-WS	70
3							
4							
5							
6							
7							
8							

EMISSIONS SUMMARY

Name of applicant: Greenbrier Minerals
Name of plant: Saunders Prep Plant

Particulate Matter or PM (for 45CSR14 Major Source Determination)

	Uncontrolled PM		Controlled PM	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	1.90	8.34	0.48	2.09
Unpaved Haulroad Emissions	1,118.30	4,898.26	335.49	1,469.48
Paved Haulroad Emissions	7.02	30.77	2.11	9.23
Fugitive Emissions Total	**1,127.23**	**4,937.37**	**338.07**	**1,480.79**
POINT SOURCE EMISSIONS				
Equipment Emissions	291.46	1,061.10	29.15	106.11
Transfer Point Emissions	59.37	168.41	15.60	47.60
Point Source Emissions Total*	**350.83**	**1,229.51**	**44.75**	**153.71**
Facility Emissions Total	**1,478.06**	**6,166.88**	**382.82**	**1,634.51**

*Note: Point Source Total Controlled PM TPY emissions is used for 45CSR14 Major Source determination (see below)

***Facility Potential to Emit (PTE) (Baseline Emissions) = 153.71**

(Based on Point Source Total controlled PM TPY emissions from above) **ENTER ON LINE 26 OF APPLICATION**

Particulate Matter under 10 microns, or PM-10 (for 45CSR30 Major Source Determination)

	Uncontrolled PM-10		Controlled PM-10	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	0.90	3.92	0.22	0.98
Unpaved Haulroad Emissions	323.20	1,415.63	96.96	424.69
Paved Haulroad Emissions	1.34	5.85	0.40	1.76
Fugitive Emissions Total	**325.43**	**1,425.40**	**97.58**	**427.42**
POINT SOURCE EMISSIONS				
Equipment Emissions	136.99	498.72	13.70	49.87
Transfer Point Emissions	28.08	79.66	7.38	22.52
Point Source Emissions Total*	**165.07**	**578.37**	**21.08**	**72.39**
Facility Emissions Total	**490.49**	**2,003.77**	**118.66**	**499.81**

*Note: Point Source Total Controlled PM-10 TPY emissions is used for 45CSR30 Major Source determination

1. Emissions From CRUSHING AND SCREENING

1a. Primary Crushing

Primary Crusher ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CR-01	16.000	70.080	1.600	7.008	7.520	32.938	0.752	3.294
CR-02	18.000	78.840	1.800	7.884	8.460	37.055	0.846	3.705
CR-03	16.000	70.080	1.600	7.008	7.520	32.938	0.752	3.294
CR-04	7.460	32.675	0.746	3.267	3.506	15.357	0.351	1.536
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	57.460	251.675	5.746	25.167	27.006	118.287	2.701	11.829

1b. Secondary and Tertiary Crushing

Secondary & Tertiary Crusher ID	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CR-02	54.000	21.024	5.400	2.102	25.380	9.881	2.538	0.988
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	54.000	21.024	5.400	2.102	25.380	9.881	2.538	0.988

1c. Screening

Screen ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
SS-01	90.000	394.200	9.000	39.420	42.300	185.274	4.230	18.527
SS-02	90.000	394.200	9.000	39.420	42.300	185.274	4.230	18.527
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	180.000	788.400	18.000	78.840	84.600	370.548	8.460	37.055

Crushing and Screening	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TOTAL	291.460	1061.099	29.146	106.110	136.986	498.716	13.699	49.872

1. Emissions From CRUSHING AND SCREENING (Continued)

EMISSION FACTORS

source: Air Pollution Engineering Manual and References

(lb/ton of material throughput)

PM	
Primary Crushing	0.02
Tertiary Crushing	0.06
Screening	0.1

PM-10	
Primary Crushing	0.0094
Tertiary Crushing	0.0282
Screening	0.047

2. Emissions From TRANSFER POINTS

Transfer Point ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP01	1.182	5.175	0.236	1.035	0.559	2.448	0.112	0.490
TP02	1.182	5.175	0.236	1.035	0.559	2.448	0.112	0.490
TP03	1.182	5.175	0.591	2.588	0.559	2.448	0.279	1.224
TP04	1.182	5.175	0.236	1.035	0.559	2.448	0.112	0.490
TP05	1.182	5.175	0.591	2.588	0.559	2.448	0.279	1.224
TP06	1.182	5.175	0.236	1.035	0.559	2.448	0.112	0.490
TP07	1.182	5.175	0.591	2.588	0.559	2.448	0.279	1.224
TP08	0.630	2.760	0.095	0.414	0.298	1.306	0.045	0.196
TP09	0.630	2.760	0.126	0.552	0.298	1.306	0.060	0.261
TP10	0.630	2.760	0.126	0.552	0.298	1.306	0.060	0.261
TP14	0.709	3.105	0.142	0.621	0.335	1.469	0.067	0.294
TP15	0.709	3.105	0.142	0.621	0.335	1.469	0.067	0.294
TP16	0.709	3.105	0.142	0.621	0.335	1.469	0.067	0.294
TP17	0.709	3.105	0.071	0.311	0.335	1.469	0.034	0.147
TP18	0.709	3.105	0.071	0.311	0.335	1.469	0.034	0.147
TP19	0.709	3.105	0.071	0.311	0.335	1.469	0.034	0.147
TP-69	0.197	0.861	0.020	0.086	0.093	0.407	0.009	0.041
TP20	0.540	2.364	0.054	0.236	0.255	1.118	0.026	0.112
TP21	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP22	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP23	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP24	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP25	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP26	0.540	2.364	0.270	1.182	0.255	1.118	0.128	0.559
TP27	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP28	0.540	2.364	0.270	1.182	0.255	1.118	0.128	0.559
TP29	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP30	0.540	2.364	0.270	1.182	0.255	1.118	0.128	0.559
TP31	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP32	0.540	2.364	0.270	1.182	0.255	1.118	0.128	0.559
TP33	0.813	3.563	0.122	0.534	0.385	1.685	0.058	0.253
TP34	0.813	3.563	0.163	0.713	0.385	1.685	0.077	0.337
TP35	0.813	3.563	0.163	0.713	0.385	1.685	0.077	0.337
TP36	0.813	3.563	0.081	0.356	0.385	1.685	0.038	0.169
TP37	0.813	3.563	0.813	3.563	0.385	1.685	0.385	1.685
TP38	3.559	3.563	0.712	0.713	1.683	1.685	0.337	0.337
TP39	2.757	2.588	0.551	0.518	1.304	1.224	0.261	0.245
TP40	2.757	2.588	0.551	0.518	1.304	1.224	0.261	0.245
TP41	2.757	2.588	0.551	0.518	1.304	1.224	0.261	0.245
TP42	2.757	2.588	0.551	0.518	1.304	1.224	0.261	0.245
TP43	3.559	3.563	0.712	0.713	1.683	1.685	0.337	0.337
TP44	3.114	6.041	0.623	1.208	1.473	2.857	0.295	0.571
TP45	3.114	6.041	0.623	1.208	1.473	2.857	0.295	0.571
TP46	3.114	6.041	0.779	1.510	1.473	2.857	0.368	0.714
TP47	0.044	0.191	0.004	0.019	0.021	0.090	0.002	0.009
TP48	0.044	0.191	0.009	0.038	0.021	0.090	0.004	0.018
TP49	0.044	0.191	0.044	0.191	0.021	0.090	0.021	0.090
TP50	0.231	1.013	0.231	1.013	0.109	0.479	0.109	0.479
TP51	0.231	1.013	0.023	0.101	0.109	0.479	0.011	0.048
TP52	0.231	1.013	0.046	0.203	0.109	0.479	0.022	0.096
TP53	0.231	1.013	0.046	0.203	0.109	0.479	0.022	0.096
TP54	0.231	1.013	0.231	1.013	0.109	0.479	0.109	0.479

2. Emissions From TRANSFER POINTS (continued)

Transfer Point ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP55	0.231	1.013	0.231	1.013	0.109	0.479	0.109	0.479
TP56	0.237	1.037	0.024	0.104	0.112	0.491	0.011	0.049
TP57	0.237	1.037	0.024	0.104	0.112	0.491	0.011	0.049
TP58	0.146	0.639	0.015	0.064	0.069	0.302	0.007	0.030
TP59	0.146	0.639	0.044	0.192	0.069	0.302	0.021	0.091
TP60	0.146	0.639	0.146	0.639	0.069	0.302	0.069	0.302
TP61	0.231	1.013	0.046	0.203	0.109	0.479	0.022	0.096
TP62	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP63	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP64	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP65	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP66	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP67	0.405	1.013	0.405	1.013	0.191	0.479	0.191	0.479
TP68	0.405	1.013	0.405	1.013	0.191	0.479	0.191	0.479
TP69	0.116	0.254	0.116	0.254	0.055	0.120	0.055	0.120
TP70	0.116	0.254	0.116	0.254	0.055	0.120	0.055	0.120
TP71	0.116	0.254	0.023	0.051	0.055	0.120	0.011	0.024
TP72	0.116	0.254	0.116	0.254	0.055	0.120	0.055	0.120
TP73	0.116	0.254	0.116	0.254	0.055	0.120	0.055	0.120
TP74	0.116	0.254	0.023	0.051	0.055	0.120	0.011	0.024
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTALS	59.373	168.414	15.602	47.604	28.082	79.655	7.379	22.515

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.4 Aggregate Handling and Storage Piles

Emissions From Batch Drop

E = k*(0.0032) * [(U/5)^1.3]/[(M/2)^1.4] = pounds/ton

Where:		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)		
M =	Material Moisture Content (%)		

Assumptions:

k - Particle size multiplier
For PM (< or equal to 30um) k = 0.74
For PM-10 (< or equal to 10um) k = 0.35

Emission Factor
For PM E= $I$88*(0.0032)*((((Inputs!$I$72)/5)^1.3)/((((Inputs!G78+0.000000001)/2)^1.4)

=lb/ton

For PM-10 E= $J$88*(0.0032)*((((Inputs!$I$72)/5)^1.3)/(((Inputs!G78+0.000000001)/2)^1.4
=lb/ton

For lb/hr [lb/ton]*[ton/hr] = [lb/hr]

For Tons/year [lb/ton]*[ton/yr]*[ton/2000lb] = [ton/yr]

3. Emissions From WIND EROSION OF STOCKPILES

Stockpile ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
OS01	0.249	1.089	0.062	0.272	0.117	0.512	0.029	0.128
OS02	0.249	1.089	0.062	0.272	0.117	0.512	0.029	0.128
OS03	0.249	1.089	0.062	0.272	0.117	0.512	0.029	0.128
OS04	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS05	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS06	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS07	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS-08	0.015	0.065	0.004	0.016	0.007	0.031	0.002	0.008
OS-09	0.249	1.089	0.062	0.272	0.117	0.512	0.029	0.128
OS-10	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS-11	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTALS	1.904	8.342	0.476	2.085	0.895	3.921	0.224	0.980

Source:
Air Pollution Engineering Manual

Storage Pile Wind Erosion (Active Storage)

E = 1.7*[s/1.5]*[(365-p)/235]*[f/15] = (lb/day/acre)

Where:

s =	silt content of material
p =	number of days with >0.01 inch of precipitation per year
f =	percentage of time that the unobstructed wind speed
	exceeds 12 mph at the mean pile height

Emission Factors

For PM E=(1.7)*((Inputs!F147)/1.5)*((365-Inputs!I139)/235)*((Inputs!I140)/15)

For PM-10 E=0.47*(1.7)*((Inputs!F147)/1.5)*((365-Inputs!I139)/235)*((Inputs!I140)/15)

For lb/hr [lb/day/acre]*[day/24hr]*[base area of pile (acres)] = lb/hr

For Ton/yr [lb/day/acre]*[365day/yr]*[Ton/2000lb]*[base area of pile (acres)] = Ton/yr

4. Emissions From UNPAVED HAULROADS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	1.71	7.53	0.51	2.26	0.49	2.18	0.15	0.65
2	1.71	7.53	0.51	2.26	0.49	2.18	0.15	0.65
3	873.92	3827.76	262.18	1148.33	252.57	1106.25	75.77	331.87
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	240.97	1055.45	72.29	316.63	69.64	305.03	20.89	91.51
TOTALS	1118.30	4898.26	335.49	1469.48	323.20	1415.63	96.96	424.69

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.2 Unpaved Roads

Emission Estimate For Unpaved Haulroads at Industrial Sites (equation 1)

E= k*((s/12)^a)*((W/3)^b) =lb/vmt

Where:

		PM	PM-10
k =	particle size multiplier	4.90	1.50
a =	empirical constant	0.7	0.9
b =	empirical constant	0.45	0.45

Emission Factors

For PM E= (($I$35)*(((Inputs!$I$163)/12)^($I$36))*(((Inputs!H171)/3)^$I$37))

For PM-10 E= (($J$35)*(((Inputs!$I$163)/12)^($J$36))*(((Inputs!H171)/3)^$J$37))

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)

5. Emissions From INDUSTRIAL PAVED HAULROADS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	3.51	15.38	1.05	4.61	0.67	2.93	0.20	0.88
2	3.51	15.38	1.05	4.61	0.67	2.93	0.20	0.88
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	7.02	30.77	2.11	9.23	1.34	5.85	0.40	1.76

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.1 PAVED ROADS

Emission Estimate For Paved Haulroads

E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - (P/4*N) = lb / Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10
k =	particle size multiplier	0.082	0.016
sL =	road surface silt loading, (g/ft^2)	1	
P =	number of days per year with precipitation >0.01 inch	157	
N =	number of days in averaging period	365	
C=	factor for exhaust, brake wear and tire wear	0.0047	0.0047

Emission Factors

For PM E= ($I$34*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5)-($I$38))*(1-((Inputs!I

For PM-10 E= ($J$34)*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5))-($I$38))*(1-((Inputs!$

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)

Legal Advertisement

AIR QUALITY PERMIT NOTICE
Notice of Application

Notice is given that Greenbrier Minerals, LLC has applied to the West Virginia Department of Environmental Protection, Division of Air Quality, for a General Permit Registration Modification of a coal preparation plant facility located at Saunders in Logan County, West Virginia. Facility coordinates are as follows: latitude 37.8022222 and longitude –81.0660833.

The applicant estimates that there will be no increase in the potential to discharge the following Regulated Air Pollutants: particulate matter baseline emissions or point source emissions particulate matter less than 10 microns, but there will be an increase of 317 tons per year of the controlled facility emission total due to fugitive haulroad emissions.

Startup of operation is planned to begin upon permit approval. Written comments will be received by the West Virginia Department of Environmental Protection, Division of Air Quality, 601 57th Street, SE, Charleston, WV 25304, for at least 30 calendar days from the date of publication of this notice.

Any questions regarding this permit application should be directed to the DAQ at (304) 926-0499, extension 1250, during normal business hours.

Dated this the 1st day of February 2017

By: **Greenbrier Minerals, LLC**
Robert L. Cline
Vice President
4425 Anjean Road
Rupert, WV 25984

ATTACHMENT K

ELECTRONIC SUBMITTAL DISK

SECTION IV. CERTIFICATION OF INFORMATION

This General Permit Registration Application shall be signed below by a Responsible Official. A Responsible Official is a President, Vice President, Secretary, Treasurer, General Partner, General Manager, a member of a Board of Directors, or Owner, depending on business structure. A business may certify an Authorized Representative who shall have authority to bind the Corporation, Partnership, Limited Liability Company, Association, Joint Venture or Sole Proprietorship. Required records of daily throughput, hours of operation and maintenance, general correspondence, Emission Inventory, Certified Emission Statement, compliance certifications and all required notifications must be signed by a Responsible Official or an Authorized Representative. If a business wishes to certify an Authorized Representative, the official agreement below shall be checked off and the appropriate names and signatures entered. Any administratively incomplete or improperly signed or unsigned Registration Application will be returned to the applicant.

FOR A CORPORATION (domestic or foreign)

G I certify that I am a President, Vice President, Secretary, Treasurer or in charge of a principal business function of the corporation

FOR A PARTNERSHIP

G I certify that I am a General Partner

FOR A LIMITED LIABILITY COMPANY

■ I certify that I am a General Partner or General Manager

FOR AN ASSOCIATION

G I certify that I am the President or a member of the Board of Directors

FOR A JOINT VENTURE

G I certify that I am the President, General Partner or General Manager

FOR A SOLE PROPRIETORSHIP

G I certify that I am the Owner and Proprietor

G

is an Authorized Representative and in that capacity shall represent the interest of the business (e.g., Corporation, Partnership, Limited Liability Company, Association Joint Venture or Sole Proprietorship) and may obligate and legally bind the business. If the business changes its Authorized Representative, a Responsible Official shall notify the Chief of the Office of Air Quality immediately, and/or,

I hereby certify that all information contained in this General Permit Registration Application and any supporting documents appended hereto is, to the best of my knowledge, true, accurate and complete, and that all reasonable efforts have been made to provide the most comprehensive information possible

Signature _____ 1-25-17
(please use blue ink) Responsible Official Date

Name & Title ROBERT L. CLINE, Vice President
(please print or type)

Signature _____
(please use blue ink) Authorized Representative (if applicable) Date

Applicant's Name: GREENBRIER MINERALS, LLC

Phone: 304-392-1000

Email: robert.cline@coronadous.com (contact: Leslie Lavender (leslie.lavender@coronadous.com)

SECTION III. ATTACHMENTS AND SUPPORTING DOCUMENTS

PLEASE CHECK ALL ATTACHMENTS INCLUDED WITH THIS PERMIT APPLICATION:
Please See the appropriate reference document for an explanation of the attachments listed below.

- ■ **ATTACHMENT A : CURRENT BUSINESS CERTIFICATE**
- ■ **ATTACHMENT B: PROCESS DESCRIPTION**
- ■ **ATTACHMENT C: DESCRIPTION OF FUGITIVE EMISSIONS**
- ■ **ATTACHMENT D: PROCESS FLOW DIAGRAM**
- ■ **ATTACHMENT E: PLOT PLAN**
- ■ **ATTACHMENT F: AREA MAP**
- ■ **ATTACHMENT G: AFFECTED SOURCE SHEETS**
- ■ **ATTACHMENT H: BAGHOUSE AIR POLLUTION CONTROL DEVICE SHEET**
- ■ **ATTACHMENT I: EMISSIONS CALCULATIONS**
- ■ **ATTACHMENT J: CLASS I LEGAL ADVERTISEMENT**
- ■ **ATTACHMENT K: ELECTRONIC SUBMITTAL DISKETTE**
- ■ **CERTIFICATION OF INFORMATION**
- ■ **APPLICATION FEE**

PLEASE MAIL AN ORIGINAL AND TWO COPIES OF THE COMPLETE GENERAL PERMIT REGISTRATION APPLICATION WITH THE SIGNATURE(S) TO THE DAQ PERMITTING SECTION AT THE ADDRESS SHOWN ON THE FRONT PAGE. PLEASE DO NOT FAX PERMIT APPLICATIONS. FOR QUESTIONS REGARDING APPLICATIONS OR WEST VIRGINIA AIR POLLUTION RULES AND REGULATIONS PLEASE CALL (304) 926-3727.

INPUTS

Include all information for each emission source and transfer point as listed in the permit application.

Name of applicant: *Cliffs Logan Co. Coal, LLC*
Name of plant: **Saunders Prep Plant**
November 2014 Mod

1. CRUSHING AND SCREENING *(including all primary and secondary crushers and screens)*

1a. PRIMARY CRUSHING

Primary Crusher ID Number	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %
CR-01	MMD	800	7,008,000	FW	90
CR-02	Double Roll	900	7,884,000	FW	90
CR-03	Double Roll	800	7,008,000	FW	90
CR-04	Double Roll	373	3,267,480	FW	90

1b. SECONDARY AND TERTIARY CRUSHING

Secondary & Tertiary Crusher ID	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %
CR-02	DOUBLE ROLL	900	700,800	FW	90
	10% of trucked coal processed as secondary				

1c. SCREENING

Primary Screen	Description	Maximum Material Processing Capacity TPH	Maximum Material Processing Capacity TPY	Control Device ID Number	Control Efficiency %
SS-01	Grizzly	900	7,884,000	FW	90
SS-02	In-Plant Screen	900	7,884,000	FW	90
	SS-02 should get WW control as 3695				
	gallons per minute of water goes thru it				

2. TRANSFER POINTS (including all conveyor transfer points, equipment transfer points etc.)

		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)	7	

Transfer Point ID No.	Transfer Point Description Include ID Numbers of all conveyors, crushers, screens, stockpiles, etc. involved	Material Moisture Content %	Maximum Transfer Rate TPH	Maximum Transfer Rate TPY	Control Device ID Number	Control Efficiency %	
TP01	ROM to BC-01	6	1,500	13,140,000	TC-FE	80	
TP02	BC-01 to BC-02	6	1,500	13,140,000	TC-FE	80	
TP03	BC-02 to OS-01	6	1,500	13,140,000	TC-PE	50	
TP04	BC-02 to BC-03	6	1,500	13,140,000	TC-FE	80	
TP05	BC-03 to OS-02	6	1,500	13,140,000	TC-PE	50	
TP06	BC-03 to BC-04	6	1,500	13,140,000	TC-FE	80	
TP07	BC-04 to OS-03	6	1,500	13,140,000	TC-PE	50	
TP08	Truck to BS-01	6	800	7,008,000	UD-PW	85	
TP09	BS-01 to BC-05	6	800	7,008,000	TC-FE	80	
TP10	BC-05 to CR-01	6	800	7,008,000	TC-FE	80	
TP11	CR-01 to BC-06	6	800	7,008,000	TC-FW	90	
TP12	BC-06 to OS-03	6	800	7,008,000	TC-PE	50	
TP13	OS-01 to BC-07	6	900	7,884,000	LO-UC	80	
TP14	OS-02 to BC-07	6	900	7,884,000	LO-UC	80	
TP15	OS-03 to BC-07	6	900	7,884,000	LO-UC	80	
TP16	BC-07 to SS-01	6	900	7,884,000	TC-FE	80	
TP17	SS-01 to CR-02	6	900	7,884,000	TC-FW	90	
TP18	CR-02 to BC-08	6	900	7,884,000	TC-FW	90	
TP19	BC-08 to SS-02	6	900	7,884,000	TC-FW	90	
TP-69	SS-02 To Wet Wash	15	900	7,884,000	TC-FW	90	3985GPM
TP20	Plant to BC-09	6.4	750	6,570,000	TC-FW	90	
TP21	BC-09 to BC-10	6.4	750	6,570,000	TC-FE	80	
TP22	BC-10 to BC-11	6.4	750	6,570,000	TC-FE	80	
TP23	BC-11 to BC-12	6.4	750	6,570,000	TC-FE	80	
TP24	BC-12 to BC-13	6.4	750	6,570,000	TC-FE	80	
TP25	BC-13 to BC-14	6.4	750	6,570,000	TC-FE	80	
TP26	BC-14 to OS-04	6.4	750	6,570,000	TC-PE	50	
TP27	BC-14 to BC-15	6.4	750	6,570,000	TC-FE	80	
TP28	BC-15 to OS-05	6.4	750	6,570,000	TC-PE	50	
TP29	BC-15 to BC-16	6.4	750	6,570,000	TC-FE	80	
TP30	BC-16 to OS-06	6.4	750	6,570,000	TC-PE	50	
TP31	BC-16 to BC-17	6.4	750	6,570,000	TC-FE	80	
TP32	BC-17 to OS-07	6.4	750	6,570,000	TC-PE	50	
TP33	Truck to BS-02	5	800	7,008,000	UD-PW	85	
TP34	BS-02 to BC-18	5	800	7,008,000	TC-FE	80	
TP35	BC-18 to CR-03	5	800	7,008,000	TC-FE	80	
TP36	CR-03 to BC-19	5	800	7,008,000	TC-FW	90	
TP37	BC-19 to OS-07	5	800	7,008,000	TC-MDH	0	
TP38	OS-07 to BC-21	5	3,500	7,008,000	LO-UC	80	
TP39	OS-04 to BC-20	6	3,500	6,570,000	LO-UC	80	
TP40	OS-05 to BC-20	6	3,500	6,570,000	LO-UC	80	
TP41	OS-06 to BC-20	6	3,500	6,570,000	LO-UC	80	
TP42	BC-20 to BC-22	6	3,500	6,570,000	TC-FE	80	
TP43	BC-21 to BC-22	5	3,500	7,008,000	TC-FE	80	
TP44	BC-22 to BS-03	5.5	3,500	13,578,000	TC-FE	80	
TP45	BS-03 to BS-04	5.5	3,500	13,578,000	TC-FE	80	
TP46	BS-04 to Railcar	5.5	3,500	13,578,000	LR-TC	75	
TP47	Plant to BC-23	15	200	1,752,000	TC-FW	90	
TP48	BC-23 to BS-05	15	200	1,752,000	TC-FE	80	
TP49	BS-05 to Truck	15	200	1,752,000	LO-MDH	0	
TP50	Truck to Disposal Area	10	600	5,256,000	UL-MDH	0	
TP51	Plant to BC-24	10	600	5,256,000	TC-FW	90	
TP52	BC-24 to BC-25	10	600	5,256,000	TC-FE	80	
TP53	BC-25 to BS-06	10	600	5,256,000	TC-FE	80	
TP54	BS-06 to Truck	10	600	5,256,000	LO-MDH	0	
TP55	Truck to Disposal Area	10	600	5,256,000	UL-MDH	0	
TP56	Plant to Crusher CR-04	7	373	3,267,480	TC-FW	90	
TP57	CR-04 to BC09	7	373	3,267,480	TC-FW	90	
TP58	Plant to BC-26	7	230	2,014,000	TC-FW	90	

TP59	BC-26 to OS-08	7	230	2,014,000	TC-WS	70
TP60	OS-08 to Truck	7	230	2,014,000	LO-MDH	0
TP61	BS-06 to BC-27	10	600	5,256,000	TC-FE	80
TP62	BC-27 to BC-28	10	1,050	5,256,000	TC-FE	80
TP63	BC-28 to BC-29	10	1,050	5,256,000	TC-FE	80
TP64	BC-29 to BC-30	10	1,050	5,256,000	TC-FE	80
TP65	BC-30 to BC-31	10	1,050	5,256,000	TC-FE	80
TP66	BC-31 to BS-07	10	1,050	5,256,000	TC-FE	80
TP67	BS-07 to Truck	10	1,050	5,256,000	LO-MDH	0
TP68	Truck to Disposal Area	10	1,050	5,256,000	LO-MDH	0
TP69	Truck to OS-09	5	114	500,000	UL-MDH	0
TP70	OS-09 to Truck	5	114	500,000	LO-MDH	0
TP71	Truck to RC Dump Bin	5	114	500,000	UD-PW	80
TP72	Truck to OS-10	5	114	500,000	UL-MDH	0
TP73	OS-10 to Truck	5	114	500,000	LO-MDH	0
TP74	Truck to DS Dump Bin	5	114	500,000	UD-PW	80

3. WIND EROSION OF STOCKPILES *(including all stockpiles of raw coal, clean coal, coal refuse, etc.)*

p =	number of days per year with precipitation >0.01 inch	157
f =	percentage of time that the unobstructed wind speed exceeds 12 mph at the mean pile height	20

Source ID No.	Stockpile Description	Silt Content of Material %	Stockpile base area Max. sqft	Control Device ID Number	Control Efficiency %
OS01	Raw Coal	5	38,869	SW-WS	75
OS02	Raw Coal	5	38,869	SW-WS	75
OS03	Raw Coal	5	38,869	SW-WS	75
OS04	Clean Coal	3	38,869	SW-WS	75
OS05	Clean Coal	3	38,869	SW-WS	75
OS06	Clean Coal	3	38,869	SW-WS	75
OS07	Clean Coal	3	38,869	SW-WS	75
OS-08	Stoker Coal	3	3,869	SW-WS	75
OS-09	Excess raw coal	5	38,869	SW-WS	75
OS-10	Excess clean coal	3	38,869	SW-WS	75

4. UNPAVED HAULROADS *(including all equipment traffic involved in process, haul trucks, endloaders, etc.)*

s =	silt content of road surface material (%)	9
p =	number of days per year with precipitation >0.01 inch	157
M_{dry} =	surface material moisture content (%) - dry conditions	0.2

Item Number	Description	Number of wheels	Mean Vehicle Weight(tons)	Mean Vehicle Speed (mph)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	to OS-09	18	45	10	0.1	1.26	11,111	HR-WS	70
2	to OS-10	18	45	10	0.1	1.26	11,111	HR-WS	70
3	Refuse Out 7,008,000	14	40	10	3.4	20	175,200	HR-WS	70
4	Plans are to use plant refuse bins								
5	for emergency use only - total								
6	distance may be only 600 ft so								
7	miles traveled are worst case								
8									

5. INDUSTRIAL PAVED HAULROADS *(including all equipment traffic involved in process, haul trucks, endloaders, etc.)*

sL =	road surface silt loading, (g/ft^2)	1
P =	number of days per year with precipitation >0.01 inch	157

Item Number	Description	Mean Vehicle Weight (tons)	Miles per Trip	Maximum Trips Per Hour	Maximum Trips Per Year	Control Device ID Number	Control Efficiency %
1	Raw Coal In 7,008,000	18	0.29	17.77	155,733	HR-WS	70
2	Clean Coal In 7,008,000	18	0.29	17.77	155,733	HR-WS	70
3							
4							
5							
6							
7							
8							

EMISSIONS SUMMARY

Name of applicant: Cliffs Logan Co. Coal, LLC
Name of plant: Saunders Prep Plant

Particulate Matter or PM (for 45CSR14 Major Source Determination)

	Uncontrolled PM		Controlled PM	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	1.76	7.69	0.44	1.92
Unpaved Haulroad Emissions	877.33	3,842.81	263.20	1,152.84
Paved Haulroad Emissions	7.02	30.77	2.11	9.23
Fugitive Emissions Total	**886.11**	**3,881.27**	**265.74**	**1,164.00**
POINT SOURCE EMISSIONS				
Equipment Emissions	291.46	1,061.10	29.15	106.11
Transfer Point Emissions	59.37	168.41	15.60	47.60
Point Source Emissions Total*	**350.83**	**1,229.51**	**44.75**	**153.71**
Facility Emissions Total	**1,236.94**	**5,110.78**	**310.49**	**1,317.71**

*Note: Point Source Total Controlled PM TPY emissions is used for 45CSR14 Major Source determination (see below)

***Facility Potential to Emit (PTE) (Baseline Emissions) = 153.71**

(Based on Point Source Total controlled PM TPY emissions from above) **ENTER ON LINE 26 OF APPLICATION**

Particulate Matter under 10 microns, or PM-10 (for 45CSR30 Major Source Determination)

	Uncontrolled PM-10		Controlled PM-10	
	lb/hr	TPY	lb/hr	TPY
FUGITIVE EMISSIONS				
Stockpile Emissions	0.82	3.61	0.21	0.90
Unpaved Haulroad Emissions	253.55	1,110.60	76.07	333.18
Paved Haulroad Emissions	1.34	5.85	0.40	1.76
Fugitive Emissions Total	**255.71**	**1,120.06**	**76.67**	**335.84**
POINT SOURCE EMISSIONS				
Equipment Emissions	136.99	498.72	13.70	49.87
Transfer Point Emissions	28.08	79.66	7.38	22.52
Point Source Emissions Total*	**165.07**	**578.37**	**21.08**	**72.39**
Facility Emissions Total	**420.78**	**1,698.43**	**97.75**	**408.22**

*Note: Point Source Total Controlled PM-10 TPY emissions is used for 45CSR30 Major Source determination

1. Emissions From CRUSHING AND SCREENING

1a. Primary Crushing

Primary Crusher ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CR-01	16.000	70.080	1.600	7.008	7.520	32.938	0.752	3.294
CR-02	18.000	78.840	1.800	7.884	8.460	37.055	0.846	3.705
CR-03	16.000	70.080	1.600	7.008	7.520	32.938	0.752	3.294
CR-04	7.460	32.675	0.746	3.267	3.506	15.357	0.351	1.536
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	57.460	251.675	5.746	25.167	27.006	118.287	2.701	11.829

1b. Secondary and Tertiary Crushing

Secondary & Tertiary Crusher ID	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CR-02	54.000	21.024	5.400	2.102	25.380	9.881	2.538	0.988
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	54.000	21.024	5.400	2.102	25.380	9.881	2.538	0.988

1c. Screening

Screen ID Number	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
SS-01	90.000	394.200	9.000	39.420	42.300	185.274	4.230	18.527
SS-02	90.000	394.200	9.000	39.420	42.300	185.274	4.230	18.527
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL	180.000	788.400	18.000	78.840	84.600	370.548	8.460	37.055

Crushing and Screening	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TOTAL	291.460	1061.099	29.146	106.110	136.986	498.716	13.699	49.872

1. Emissions From CRUSHING AND SCREENING (Continued)

EMISSION FACTORS

source: Air Pollution Engineering Manual and References

(lb/ton of material throughput)

PM	
Primary Crushing	0.02
Tertiary Crushing	0.06
Screening	0.1

PM-10	
Primary Crushing	0.0094
Tertiary Crushing	0.0282
Screening	0.047

2. Emissions From TRANSFER POINTS

Transfer Point ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP01	1.182	5.175	0.236	1.035	0.559	2.448	0.112	0.490
TP02	1.182	5.175	0.236	1.035	0.559	2.448	0.112	0.490
TP03	1.182	5.175	0.591	2.588	0.559	2.448	0.279	1.224
TP04	1.182	5.175	0.236	1.035	0.559	2.448	0.112	0.490
TP05	1.182	5.175	0.591	2.588	0.559	2.448	0.279	1.224
TP06	1.182	5.175	0.236	1.035	0.559	2.448	0.112	0.490
TP07	1.182	5.175	0.591	2.588	0.559	2.448	0.279	1.224
TP08	0.630	2.760	0.095	0.414	0.298	1.306	0.045	0.196
TP09	0.630	2.760	0.126	0.552	0.298	1.306	0.060	0.261
TP10	0.630	2.760	0.126	0.552	0.298	1.306	0.060	0.261
TP14	0.709	3.105	0.142	0.621	0.335	1.469	0.067	0.294
TP15	0.709	3.105	0.142	0.621	0.335	1.469	0.067	0.294
TP16	0.709	3.105	0.142	0.621	0.335	1.469	0.067	0.294
TP17	0.709	3.105	0.071	0.311	0.335	1.469	0.034	0.147
TP18	0.709	3.105	0.071	0.311	0.335	1.469	0.034	0.147
TP19	0.709	3.105	0.071	0.311	0.335	1.469	0.034	0.147
TP-69	0.197	0.861	0.020	0.086	0.093	0.407	0.009	0.041
TP20	0.540	2.364	0.054	0.236	0.255	1.118	0.026	0.112
TP21	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP22	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP23	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP24	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP25	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP26	0.540	2.364	0.270	1.182	0.255	1.118	0.128	0.559
TP27	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP28	0.540	2.364	0.270	1.182	0.255	1.118	0.128	0.559
TP29	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP30	0.540	2.364	0.270	1.182	0.255	1.118	0.128	0.559
TP31	0.540	2.364	0.108	0.473	0.255	1.118	0.051	0.224
TP32	0.540	2.364	0.270	1.182	0.255	1.118	0.128	0.559
TP33	0.813	3.563	0.122	0.534	0.385	1.685	0.058	0.253
TP34	0.813	3.563	0.163	0.713	0.385	1.685	0.077	0.337
TP35	0.813	3.563	0.163	0.713	0.385	1.685	0.077	0.337
TP36	0.813	3.563	0.081	0.356	0.385	1.685	0.038	0.169
TP37	0.813	3.563	0.813	3.563	0.385	1.685	0.385	1.685
TP38	3.559	3.563	0.712	0.713	1.683	1.685	0.337	0.337
TP39	2.757	2.588	0.551	0.518	1.304	1.224	0.261	0.245
TP40	2.757	2.588	0.551	0.518	1.304	1.224	0.261	0.245
TP41	2.757	2.588	0.551	0.518	1.304	1.224	0.261	0.245
TP42	2.757	2.588	0.551	0.518	1.304	1.224	0.261	0.245
TP43	3.559	3.563	0.712	0.713	1.683	1.685	0.337	0.337
TP44	3.114	6.041	0.623	1.208	1.473	2.857	0.295	0.571
TP45	3.114	6.041	0.623	1.208	1.473	2.857	0.295	0.571
TP46	3.114	6.041	0.779	1.510	1.473	2.857	0.368	0.714
TP47	0.044	0.191	0.004	0.019	0.021	0.090	0.002	0.009
TP48	0.044	0.191	0.009	0.038	0.021	0.090	0.004	0.018
TP49	0.044	0.191	0.044	0.191	0.021	0.090	0.021	0.090
TP50	0.231	1.013	0.231	1.013	0.109	0.479	0.109	0.479
TP51	0.231	1.013	0.023	0.101	0.109	0.479	0.011	0.048
TP52	0.231	1.013	0.046	0.203	0.109	0.479	0.022	0.096
TP53	0.231	1.013	0.046	0.203	0.109	0.479	0.022	0.096
TP54	0.231	1.013	0.231	1.013	0.109	0.479	0.109	0.479

2. Emissions From TRANSFER POINTS (continued)

Transfer Point ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
TP55	0.231	1.013	0.231	1.013	0.109	0.479	0.109	0.479
TP56	0.237	1.037	0.024	0.104	0.112	0.491	0.011	0.049
TP57	0.237	1.037	0.024	0.104	0.112	0.491	0.011	0.049
TP58	0.146	0.639	0.015	0.064	0.069	0.302	0.007	0.030
TP59	0.146	0.639	0.044	0.192	0.069	0.302	0.021	0.091
TP60	0.146	0.639	0.146	0.639	0.069	0.302	0.069	0.302
TP61	0.231	1.013	0.046	0.203	0.109	0.479	0.022	0.096
TP62	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP63	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP64	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP65	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP66	0.405	1.013	0.081	0.203	0.191	0.479	0.038	0.096
TP67	0.405	1.013	0.405	1.013	0.191	0.479	0.191	0.479
TP68	0.405	1.013	0.405	1.013	0.191	0.479	0.191	0.479
TP69	0.116	0.254	0.116	0.254	0.055	0.120	0.055	0.120
TP70	0.116	0.254	0.116	0.254	0.055	0.120	0.055	0.120
TP71	0.116	0.254	0.023	0.051	0.055	0.120	0.011	0.024
TP72	0.116	0.254	0.116	0.254	0.055	0.120	0.055	0.120
TP73	0.116	0.254	0.116	0.254	0.055	0.120	0.055	0.120
TP74	0.116	0.254	0.023	0.051	0.055	0.120	0.011	0.024
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTALS	59.373	168.414	15.602	47.604	28.082	79.655	7.379	22.515

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.4 Aggregate Handling and Storage Piles

Emissions From Batch Drop

E = k*(0.0032) * [(U/5)^1.3]/[(M/2)^1.4] = pounds/ton

Where:

		PM	PM-10
k =	Particle Size Multiplier (dimensionless)	0.74	0.35
U =	Mean Wind Speed (mph)		
M =	Material Moisture Content (%)		

Assumptions:

k - Particle size multiplier
For PM (< or equal to 30um) k = 0.74
For PM-10 (< or equal to 10um) k = 0.35

Emission Factor
For PM E= $I$88*(0.0032)*((((Inputs!$I$72)/5)^1.3)/((((Inputs!G78+0.000000001)/2)^1.4)

=lb/ton

For PM-10 E= $J$88*(0.0032)*((((Inputs!$I$72)/5)^1.3)/(((Inputs!G78+0.000000001)/2)^1.4
=lb/ton

For lb/hr [lb/ton]*[ton/hr] = [lb/hr]

For Tons/year [lb/ton]*[ton/yr]*[ton/2000lb] = [ton/yr]

3. Emissions From WIND EROSION OF STOCKPILES

Stockpile ID No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
OS01	0.249	1.089	0.062	0.272	0.117	0.512	0.029	0.128
OS02	0.249	1.089	0.062	0.272	0.117	0.512	0.029	0.128
OS03	0.249	1.089	0.062	0.272	0.117	0.512	0.029	0.128
OS04	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS05	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS06	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS07	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
OS-08	0.015	0.065	0.004	0.016	0.007	0.031	0.002	0.008
OS-09	0.249	1.089	0.062	0.272	0.117	0.512	0.029	0.128
OS-10	0.149	0.653	0.037	0.163	0.070	0.307	0.018	0.077
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTALS	1.755	7.688	0.439	1.922	0.825	3.613	0.206	0.903

Source:
Air Pollution Engineering Manual

Storage Pile Wind Erosion (Active Storage)

E = 1.7*[s/1.5]*[(365-p)/235]*[f/15] = (lb/day/acre)

Where:

s =	silt content of material
p =	number of days with >0.01 inch of precipitation per year
f =	percentage of time that the unobstructed wind speed
	exceeds 12 mph at the mean pile height

Emission Factors

For PM E=(1.7)*((Inputs!F147)/1.5)*((365-Inputs!I139)/235)*((Inputs!I140)/15)

For PM-10 E=0.47*(1.7)*((Inputs!F147)/1.5)*((365-Inputs!I139)/235)*((Inputs!I140)/15)

For lb/hr [lb/day/acre]*[day/24hr]*[base area of pile (acres)] = lb/hr

For Ton/yr [lb/day/acre]*[365day/yr]*[Ton/2000lb]*[base area of pile (acres)] = Ton/yr

4. Emissions From UNPAVED HAULROADS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	1.71	7.53	0.51	2.26	0.49	2.18	0.15	0.65
2	1.71	7.53	0.51	2.26	0.49	2.18	0.15	0.65
3	873.92	3827.76	262.18	1148.33	252.57	1106.25	75.77	331.87
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	877.33	3842.81	263.20	1152.84	253.55	1110.60	76.07	333.18

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.2 Unpaved Roads

Emission Estimate For Unpaved Haulroads at Industrial Sites (equation 1)

E= k*((s/12)^a)*((W/3)^b) =lb/vmt

Where:

		PM	PM-10
k =	particle size multiplier	4.90	1.50
a =	empirical constant	0.7	0.9
b =	empirical constant	0.45	0.45

Emission Factors

For PM E= (($I$35)*(((Inputs!$I$163)/12)^($I$36))*(((Inputs!H171)/3)^$I$37))

For PM-10 E= (($J$35)*(((Inputs!$I$163)/12)^($J$36))*(((Inputs!H171)/3)^$J$37))

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)

5. Emissions From INDUSTRIAL PAVED HAULROADS

Item No.	PM				PM-10			
	Uncontrolled		Controlled		Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	3.51	15.38	1.05	4.61	0.67	2.93	0.20	0.88
2	3.51	15.38	1.05	4.61	0.67	2.93	0.20	0.88
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS	7.02	30.77	2.11	9.23	1.34	5.85	0.40	1.76

Source:
AP42, Fifth Edition, Revised 11/2006
13.2.1 PAVED ROADS

Emission Estimate For Paved Haulroads

E = [k * (sL/2)^0.65 * (W/3)^1.5 - C] * (1 - (P/4*N) = lb / Vehicle Mile Traveled (VMT)

Where:

		PM	PM-10
k =	particle size multiplier	0.082	0.016
sL =	road surface silt loading, (g/ft^2)	1	
P =	number of days per year with precipitation >0.01 inch	157	
N =	number of days in averaging period	365	
C=	factor for exhaust, brake wear and tire wear	0.0047	0.0047

Emission Factors

For PM E= ($I$34*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5)-($I$38))*(1-((Inputs!I

For PM-10 E= ($J$34)*((($I$35)/2)^0.65)*(((Inputs!G190)/3)^1.5))-($I$38))*(1-((Inputs!$

For lb/hr (lb/vmt)*(miles per trip)*(Max trips per hour)

For Ton/yr (lb/vmt)*(miles per trip)*(Max trips per year)*(1/2000)